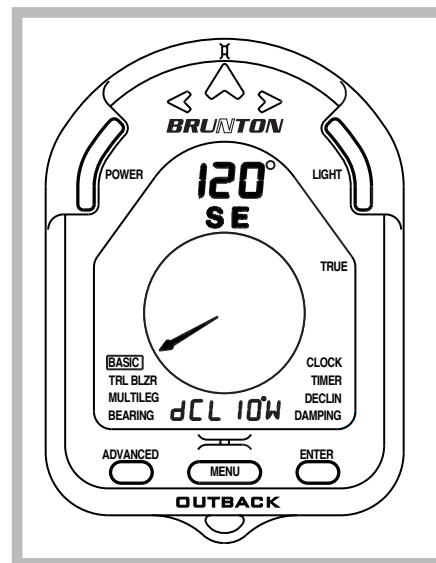


THE **BRUNTON** CO.

OUTBACK



OPERATION MANUAL

CONGRATULATIONS

on your purchase of the Brunton Outback Compass. The Outback is the most sophisticated hand-held compass on the market, incorporating technology developed for the U.S. military. The Outback has been designed with a variety of options. For the novice outdoors enthusiast, the Basic menu option has all the features of a traditional compass, plus a few more. The advanced features of Trail Blazing, Multi-Leg, Bearing, Clock, Timer, Declination, and Damping offer the serious user features not found in traditional compasses, such as storing courses and bearing points.

OUTBACK FEATURES:

- Tilt compensation provides accuracy of 2° even when tilted up to $\pm 15^\circ$.
- Heading is displayed in digits, cardinal points and on the compass rose.
- Heading is easily referenced to magnetic or true north.
- Multiple declination angles can be stored.
- Trail Blazing memorizes your course as you travel.
- Multi-Leg stores a pre-planned route to follow later.
- Day and Night Navigation keep you on a chosen course.
- Automatic return reverses a route and guides you back to your starting point.
- Bearings are stored with a press of a button.
- Clock displays in either standard or military time format.
- The timer counts up or down and stores a time.
- Damping reduces errors caused by movement of the compass.
- Magnetic distortion alarm warns when outside magnetic interference is causing errors in the compass heading.
- Resistant to water from rain, dew or being splashed.
- Power and Backlight Auto Shut-off
- Extended battery life of 200 hours

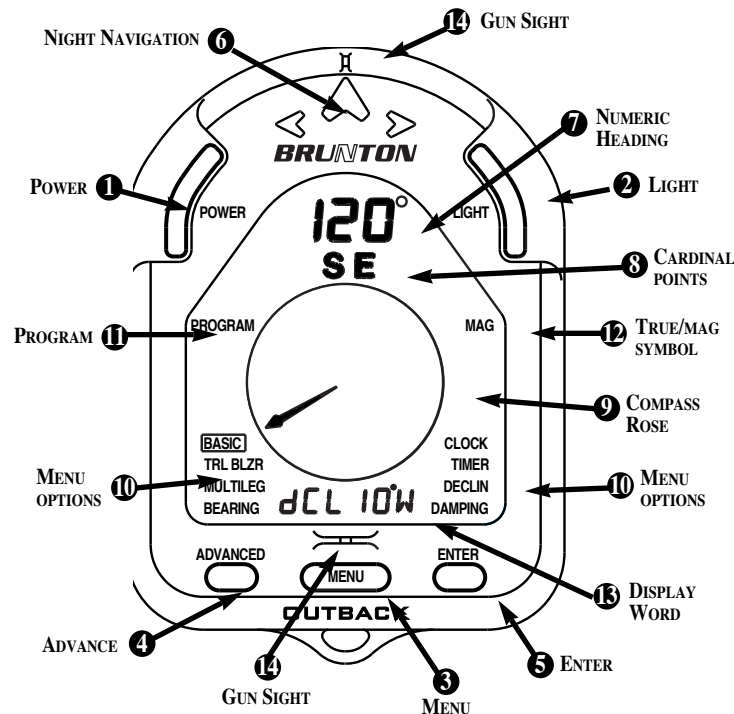
IMPORTANT

To provide tilt compensation, the magnetic sensors inside the Outback are mechanically gimbaled. This may cause a "rattling" noise if the Outback is shaken or jarred. This is not a defect in the compass, but a result of the movement of the magnetic sensors.

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BUTTON AND DISPLAY INFORMATION



IMPORTANT

To provide tilt compensation, the magnetic sensors inside the Outback are mechanically gimbaled. This may cause a "rattling" noise if the Outback is shaken or jarred. This is not a defect in the compass, but a result of the movement of the magnetic sensors.

- 1 POWER:** Press and hold POWER to turn the Outback on. Press POWER momentarily to turn the Outback off.
- 2 LIGHT:** Press LIGHT to turn the back-light of the LCD on or off. Hold LIGHT for more than 2 seconds to turn Night Navigation on or off in either Trail Blazing or Multi-Leg.
- 3 MENU:** Press MENU to step from one menu option to another. Hold MENU to illuminate the *PROGRAM* symbol and enter programming mode. (Example: press MENU once to move from Basic to Trail Blazing or hold MENU until *PROGRAM* flashes to enter programming mode)
- 4 ADVANCE:** Press ADVANCE to see the next option or value. (Example: press ADVANCE to increase a digit from 1 to 2)
- 5 ENTER:** Press ENTER to select an option, value or bearing, to start calibration, or to start or stop a timer of a leg. (Example: press ENTER to store a bearing)
- 6 NIGHT NAVIGATION:** For use in Trail Blazing and Multi-Leg, the red and green arrows keep you on course.
- 7 NUMERIC HEADING:** Heading is displayed in 1° increments from 0° to 359°.
- 8 CARDINAL POINTS:** Direction letters (N, NE, E, SE, S, SW, W, NW).
- 9 COMPASS ROSE:** A solid arrow points to North. During Day Navigation, arrows guide you in the right direction.
- 10 MENU OPTIONS:** The menu options of the Outback are continuously displayed. A box around the menu option indicates which option the Outback is using.
- 11 PROGRAM:** The *PROGRAM* symbol flashes while in programming mode.
- 12 TRUE/MAG SYMBOL:** The *TRUE* symbol is illuminated when the heading reference is true north and the *MAG* symbol is illuminated when the heading reference is magnetic north.
- 13 DISPLAY WORD:** Six alphanumeric characters. The display word shows instructions, information, options and values.
- 14 GUN SIGHTS:** Used for taking bearings.

INTRODUCTION

CONVENTIONS USED IN THIS MANUAL

- The names of buttons are capitalized. (Example: press POWER)
- The LCD symbols are capitalized and italicized. (Example: *PROGRAM*)
- When the manual says press a button, it means press the button for less than 2 seconds. (Example: press ENTER)
- When the manual says hold a button, it means hold the button down for more than 2 seconds. (Example: hold MENU)
- Quotation marks indicate the characters are shown in the display word. (Example: "L2 210°")

ERROR MESSAGES

"bAT LO" Error Message

The Outback will alert you when the batteries are low by displaying "bAT LO" in the display word when the power is turned on. Pressing MENU, ENTER or ADVANCE will override this message. The Outback will function for a short period of time after "bAT LO" is displayed, although it is recommended the batteries be changed immediately. See Changing Batteries on page 32 for details on how to change batteries.

"dIST" Error Message

When the Outback detects magnetic inference causing errors in the compass heading, "dIST" is shown on the display word, indicating magnetic distortion. This is a sign the Outback may need to be calibrated. See Calibration on page 10 for details. If "dIST" is still displayed after performing calibration, the compass is most likely close to some object with very strong magnetic fields such as steel. Try moving the Outback away from the source of the magnetic field; even a slight separation helps.

BACKLIGHT

The Outback has a built-in backlight which allows the entire LCD to be visible in low lighting. Pressing LIGHT turns the backlight on or off. The light functions in all menu options and stays on until LIGHT is pressed, the chosen power or backlight auto shut-off value is reached (see page 9 for details) or the Outback is turned off. It is recommended the backlight be turned off when not being used to conserve batteries.

MENU OPTIONS OF THE OUTBACK

- 1) The Outback has eight menu options: Basic, Trail Blazing, Multi-Leg, Bearing, Clock, Timer, Declination and Damping. Each menu option is continuously displayed. A box around the menu option indicates which option the Outback is using.
- 2) Pressing MENU steps from one menu option to another.
- 3) All menu options have both an operating and programming mode, except damping which only has an operating mode. In programming mode, values or parameters are stored or selected. In operating mode, stored values or parameters are used. (Example: A course is stored in programming mode of Multi-Leg, whereas a course is followed in operating mode of Multi-Leg)
- 4) The Outback is by default in **operating mode if it is not in programming mode**. (Example: If the *PROGRAM* symbol is not flashing, the Outback is in operating mode)
- 5) Throughout this manual, the Outback is assumed to be in operating mode unless otherwise stated.
- 6) Programming mode is achieved by holding MENU for more than 2 seconds until *PROGRAM* flashes.
- 7) Pressing MENU returns the Outback to operating mode from programming mode.

BASIC MENU OPTION

The Outback must be in Basic to use any of the features described in this section.

FEATURES

In Basic, the Outback functions similarly to a traditional compass: heading is shown on the Numeric Display and the compass rose points to North. In addition to the traditional compass features, Basic has the following additional features:

- 1) Choosing magnetic north or true north as the heading reference.
- 2) Choosing the Auto Shut-Off values for the power and backlight.
- 3) Calibration of the Outback to cancel out interference from magnetic fields.

Calibration must be performed before initial use to be accurate.

TRUE OR MAGNETIC NORTH HEADING REFERENCE

The *MAG/TRUE* symbol indicates whether the Outback is referenced to either true or magnetic north. The difference between true and magnetic north is called magnetic declination. For the Outback to be referenced to true north, the proper declination must be stored and chosen. See page 29 for details on declination angles.

If the *MAG* symbol is illuminated, the Outback is referenced to magnetic north.

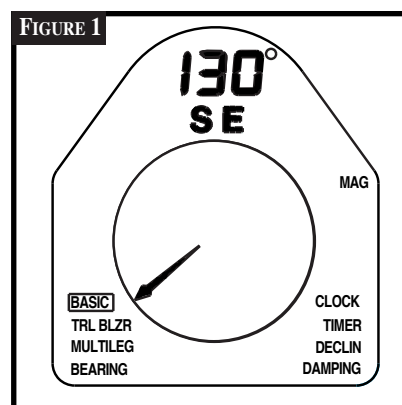
If the *TRUE* symbol is illuminated, the Outback is referenced to true north.

CHANGING THE HEADING REFERENCE

Pressing ADVANCE toggles the Outback between magnetic and true north. However, the heading reference is not changed until ENTER is pressed.

CHANGING FROM TRUE TO MAGNETIC NORTH

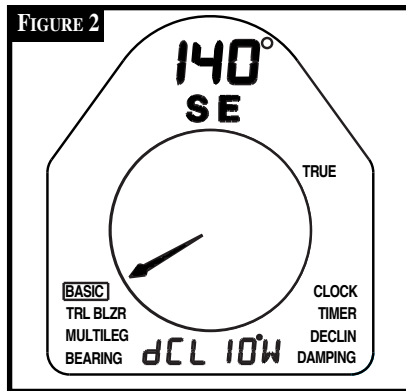
- 1) The Outback must be in Basic to change from true to magnetic north.
- 2) When the heading reference is true north, the *TRUE* symbol is illuminated and the display word shows the current declination angle being used for true north. (Example: "dCL:10°W")
- 3) Press ADVANCE and the display word flashes the magnetic north reference. (Example: "MAG:130°")
- 4) Press ENTER to select magnetic north as the heading reference. The *MAG* symbol illuminates and the display word is blank. See Figure 1.



The Outback is in operating mode of Basic, pointing 130° South East. The heading reference is magnetic north.

CHANGING FROM MAGNETIC TO TRUE NORTH

- 1) The Outback must be in Basic to change from magnetic to true north.
- 2) A magnetic declination angle must be stored for the Outback to be accurately referenced to true north. See page 29 for details on declination angles.
- 3) When the heading reference is magnetic north, the *MAG* symbol is illuminated and the display word is blank.
- 4) Press ADVANCE and the display word flashes the true north reference. (Example: "TRU:140")
- 5) Press ENTER to change the heading reference to true north. Now the *TRUE* symbol is illuminated and the display word shows the current declination angle. (Example: "dCL:10°W") See Figure 2.



*The Outback is in operating mode of Basic, pointing 140° SE.
The heading reference is true north and the declination angle is 10°W.*

IMPORTANT NOTE: When changing the reference from true to magnetic north or magnetic to true north, all stored headings in Trail Blazing, Multi-Leg, and Bearing are automatically converted to whichever north the Outback is currently referenced to, regardless of which north the headings were stored in. (Example: The Outback is referenced to true north while Multi-Leg headings are stored. The Outback's reference is now changed to magnetic north. The Multi-Leg stored headings are automatically converted to magnetic north. The Outback is now changed back to true north, all the stored headings are automatically converted back to true north)

POWER AUTO SHUT-OFF

Power Auto shut-off allows the user to select the interval at which the Outback will automatically turn off. The Outback can be programmed to automatically shut-off at 6 predetermined intervals. They are 5 minutes, 15 minutes, 30 minutes, 60 minutes, 120 minutes and 180 minutes. The Outback can also be set to never automatically shut-off. The default power auto shut-off value is 15 minutes. The Outback can always be turned off the pressing the POWER button, regardless of which power auto shut-off value is chosen. When the Outback reaches the auto shut-off value, it turns off regardless of which mode or menu option the Outback is in. Legs in Trail Blazing and Multi-leg and the timer will continue to run even when the Outback shuts-off.

- 1) The Outback must be in Basic to program the Power Auto Shut-Off.
- 2) Hold MENU until *PROGRAM* flashes to enter programming mode. The display word flashes "POWER".
- 3) Press ENTER to select power auto shut-off.
- 5) The chosen auto shut-off value is displayed. (Example: "15MIN" if the auto shut off value is 15 minutes or "OFF" if the auto shut-off is disabled)
- 6) Press ADVANCE to step from one auto shut-off value to the next until you see the one you want to use, then press ENTER.
- 7) The chosen auto shut off value does not flash when in the display word. Any value which is not the chosen value flashes when in the display word.
- 8) If you do not press ENTER while viewing an auto shut-off value, the Outback continues to use the value which was previously selected. (Example: If the auto shut-off value is currently "15MIN", and you scroll through the auto shut-off values by pressing ADVANCE, and ENTER is not pressed while viewing a different auto shut-off value, the Outback continues to use 15 minutes as the auto shut-off value)

BACKLIGHT AUTO SHUT-OFF

Backlight Auto shut-off allows the user to select the interval at which the backlight of Outback will automatically turn off. The backlight on the Outback can be programmed to automatically shut off at 3 predetermined intervals. They are: 10 seconds, 30 seconds and 60 seconds. The backlight can also be programmed to never automatically shut-off. The default auto shut-off value is 10 seconds. Keep in mind, the backlight uses significantly more power than the compass itself, therefore it is recommended the backlight be turned off when it is not being used. The backlight can always be shut-off by pressing the LIGHT button regardless of which backlight auto shut-off value is chosen.

1. The Outback must be in Basic to program the backlight auto shut-off
2. Hold MENU until *PROGRAM* flashes to enter programming mode. The display word flashes "POWER".
3. Press ADVANCE once and "LIGHT" flashes in the display word. Press ENTER to select the backlight auto shut-off.
5. The chosen backlight auto shut-off value is displayed. (Example: "10 SEC" if 10 seconds is chosen as the backlight auto shut-off or "OFF" if the backlight auto shut-off is disabled)
6. Press ADVANCE to step from one backlight auto shut-off value to the next until you see the one you want to use, then press ENTER.
7. The chosen auto shut off value does not flash when in the display word. Any value which is not the chosen value, flashes when in the display word.
8. If you do not press ENTER while viewing a different backlight auto shut-off value, the Outback uses the value which was previously selected. (Example: If the auto shut-off value is currently "10 SEC", and you scroll through the backlight auto shut-off values by pressing ADVANCE, and ENTER is not pressed while viewing a different auto shut-off value, the Outback continues to use 10 seconds as the backlight auto shut-off value)

CALIBRATION

Calibration allows the Outback to separate the earth's magnetic field from the local magnetic fields thereby providing accurate heading information. The Outback must be calibrated because the internal electronics of the Outback generate magnetic fields.

WHEN TO CALIBRATE

The Outback must be calibrated when:

- 1) It is being used for the first time.
- 2) The magnetic distortion flag, "DIST", is displayed.
- 3) The batteries are removed or replaced.
- 4) The Outback seems to be consistently inaccurate.

There are two methods of calibration for the Outback. Option one is a 180° calibration method and option two is a 720° method. The 720° calibration method is more accurate, but it is also the more difficult to perform correctly. With 720° calibration, the Outback must be constantly level during calibration. This is best achieved by placing the Outback on a level, nonmagnetic surface such as a solid wood or plastic table which is at least three feet away from any source of magnetic interference. The 180° calibration is also performed by also placing the Outback on a level, nonmagnetic surface such as a solid wood or plastic table which is at least three feet away from any source magnetic interference, but if one is not available, the 180° calibration can be performed by holding it level in your hand. Only one calibration method needs to be performed. If both are performed, the Outback will only store calibration data from the last calibration.

180° CALIBRATION

1. The Outback must be in Basic to perform 180° calibration.
2. Hold MENU until *PROGRAM* flashes to enter programming mode. The display word flashes, "POWER".
3. Press ADVANCE twice until the display word flashes "CALIB 180". Then press ENTER.

4. The display words shows "POINT FWD" and the arrow on the compass rose points to the 12 o'clock position.
5. Placing the Outback on a level, nonmagnetic surface which is at least three feet away from any source of magnetic interference, or holding the Outback level in your hand, align the compass to any point and press ENTER. This stores the first calibration point.
6. Now the display words shows "TURN 180". Again with the Outback level, turn it 180° (half circle) and press ENTER.
7. The display word shows "CMPLTE" for two seconds, indicating calibration is completed and the Outback returns to operating mode of Basic.
8. The direction the Outback is pointing when taking calibration points does not matter. The important thing is that the two calibration points are 180° apart and the Outback is as level as possible.
9. If the calibration process is not completed within 2 minutes, the Outback automatically returns to operating mode and does not change the previous calibration.
10. If POWER is pressed at anytime during the calibration process, the Outback discontinues calibration and shuts off. The previous calibration will not change.

720° CALIBRATION

1. The Outback must be in Basic to perform calibration
2. Hold MENU until PROGRAM flashes to enter programming mode. The display word flashes, "POWER".
3. Press ADVANCE three times until the display word flashes, "CALIB 720". Then press ENTER.
4. The display word scrolls "TURN TWICE", and the arrow on the compass rose rotates clockwise around the compass rose. It is best to have the Outback placed on a level, nonmagnetic surface such as a wood or plastic table which is at least three feet from any source of magnetic interference.

5. Slowly rotate the compass in a circle, turning no more than one full circle in 10 seconds. The Outback is storing calibration data while the circles are being made.
6. The Outback stores data from two approximately two circles, but sometimes more or less data is needed. Continue rotating the Outback in a circle until "CMPLTE" is shown in the display word.
7. The direction the Outback is pointing when beginning or ending the rotations does not matter, the important thing is the Outback is rotated until enough data is stored.
8. After calibration is completed, the Outback will automatically return to operating mode of Basic.
9. If the calibration process is not completed within 2 minutes, the Outback automatically returns to operating mode and does not change the previous calibration.
10. If POWER is pressed at anytime during the calibration process, the Outback discontinues calibration and shuts off. The previous calibration will not change.

TRAIL BLAZING AND MULTI-LEG MENU OPTION

The Outback must be in Trail Blazing or Multi-Leg to use any of the features described in this section.

FEATURES

Trail Blazing tracks your course as you travel, whereas Multi-Leg allows you to follow a previously planned course. The only difference between Multi-Leg and Trail Blazing is when and how the legs are stored. With Trail Blazing, legs are stored as you travel on your journey. With Multi-Leg, legs are planned and stored before your journey begins. Since Trail Blazing and Multi-Leg have the same features, they are described in the same section of the manual. Both Trail Blazing and Multi-Leg have the following features:

- 1) Memorizing Legs: Both Trail Blazing and Multi-Leg allow you to store and follow up to 10 legs with a heading and time for each leg. The legs are numbered L0 through L9.

- 2) Day and Night Navigation: These features are designed to easily help you stay on course. Your desired heading is automatically compared to your actual heading and the Outback alerts you when you are 'off-track.'
- 3) Automatic Return: The Outback automatically calculates your return course and guides you back to your starting point.

MEMORIZING LEGS

STORING LEGS IN TRAIL BLAZING

- 1) The Outback must be in Trail Blazing to store legs for Trail Blazing.
- 2) A timer can not be running while storing a leg. Press ENTER to stop a timer that is running.
- 3) Press ADVANCE to step from one leg to the next. The display word shows the heading for three seconds and then the timer for three seconds. (Example: "L2 210°" and "0:45:20") If a leg is unprogrammed, the display word shows dashes in place of the heading and zeros for the timer. (Example: "L3:—°" and "0:00:00")
- 4) To store a leg, press ADVANCE until you see an unprogrammed leg. (Example: "L3:—°") The Outback will display only one unprogrammed leg. (Example: If L0 through L2 are programmed, pressing ADVANCE while viewing L3 will take you back to L0)
- 5) Point the Outback in the direction you want to go, lining up the gun sights. Press ENTER to store that heading and start the timer running. The timer has a maximum of 9 hours, 59 minutes and 59 seconds "9:59:59", at which time it resets itself and begins to count up from zero.
- 6) Day Navigation arrows appear on the compass rose and the colons in the display word flash when the timer starts. See page 18 for details on Day Navigation.
- 7) Press ENTER to stop the timer when a leg is complete. Press ADVANCE to move to the next unprogrammed leg, and repeat step 5 to store another leg.

STORING LEGS IN MULTI-LEG

- 1) The Outback must be in Multi-Leg to store legs for Multi-Leg.
- 2) Press ADVANCE to step from one leg to the next until you see the one you want to program.
- 3) The display word shows the heading for three seconds and then the timer for three seconds. (Example: "L2 210°" and "0:45:20") If a leg is unprogrammed, the display word will show dashes in place of the heading and zeros for the timer. (Example: "L3 —°" and "0:00:00") The Outback allows you to view only one unprogrammed leg. (Example: If L0 through L2 are programmed, pressing ADVANCE while viewing L3 will take you back to L0)
- 4) Hold MENU until *PROGRAM* flashes to enter programming mode. The display word flashes, "PROGRM". Then press ENTER and "MANUAL" is displayed.
- 5) The Outback stores Multi-Leg headings two ways: manually and automatically. Headings are stored manually if the desired headings are already known in degrees. (Example: 210°, then 60° and then 340°) Headings are stored automatically if a map and the Outback will be used to determine the headings.
- 6) If headings are to be entered manually, press ENTER while "MANUAL" is displayed. Otherwise skip to the Automatic Entry section on page 15.

MANUAL ENTRY OF HEADINGS.

- 1M) After selecting to enter headings manually, the first digit of the heading flashes. (Example: "L2 000°" if a heading is not stored or "L2 348°" if a heading is already stored)
- 2M) Press ADVANCE to change the value of the digit until the first digit of the heading is displayed. (Example: 2 for 210°) Then press ENTER.

- 3M) Now the second digit of the heading flashes. (Example: "L2 200°"). (Example: 1 and then 0 for 210°) Follow step 2M to store the remaining digits

- 4M) Skip to step 7 on this page.

AUTOMATIC ENTRY OF HEADINGS.

- 1A) If headings are to be stored automatically, press ADVANCE to step from "MANUAL" to "AUTO" and then press ENTER.
- 2A) The display word scrolls, "SET NORTH." Place the map being used on a flat surface in any direction, and align the Outback to the map's relative North. This is necessary to correct for any difference in the map's North and actual North. Press ENTER to store this direction as relative North. It is important to keep the map in the same position while storing legs.
- 3A) Using a straight edge, align the Outback on the map in the direction you want to go. The numeric display and display word show the current heading of the Outback. When the Outback is aligned in the correct direction, press ENTER.
- 7) After the heading is stored (either manually or automatically), the first digit of the timer flashes. (Example: "0:00:00")
- 8) Press ADVANCE to change the value of the digit until the correct digit is displayed, and then press ENTER. (Example: 0 for "0:45:20") The timer has a maximum of 9 hours, 59 minutes and 59 seconds, "9:59:59".
- 9) Now the second digit of the timer flashes. (Example: "0:00:00") Follow step 7 to store the remaining digits
- 10) After the timer is set, the Outback displays the next unprogrammed leg. Follow steps 1M/1A through 9 to store the remaining legs.
- 11) When through programming legs, press MENU to return to operating mode.

STARTING AND STOPPING LEGS IN TRAIL BLAZING AND MULTI-LEG

- 1) To start or stop a leg in Trail Blazing, the Outback must be in Trail Blazing. To start or stop a leg in Multi-Leg, the Outback must be in Multi-Leg.
- 2) When a leg is started in Trail Blazing or Multi-Leg, the colons in the display word flash and Day Navigation arrows appear on the compass rose. When a leg is stopped in Trail Blazing or Multi-Leg, the colons in the display word do not flash and the compass rose is blank.
- 3) In Trail Blazing, a leg starts when a heading is stored. See page 13 for more details.
- 4) To start a leg in Multi-leg, press ADVANCE until the leg you want to start is displayed. Then press ENTER and the timer begins, Day Navigation arrows appear on the compass rose and the colons in the display word flash. See page 19 for details on Day Navigation.
- 5) Pressing ADVANCE toggles the display word between the desired heading and the timer in Trail Blazing and Multi-Leg.
- 6) Pressing ENTER stops a leg in Trail Blazing or Multi-Leg.
- 7) Pressing ENTER restarts a leg in Trail Blazing or Multi-Leg.
- 8) The timer for each leg can be started and stopped any number of times. Each time a leg is restarted, the timer will continue to count up or down from where it left off. When the timer reaches the maximum of 9 hours, 59 minutes and 59 seconds, "9:59:59", it resets itself and begins to count up from zero. If a timer counts down and reaches zero, it resets itself and begins to count up from "0:00:00".

VIEWING LEGS IN TRAIL BLAZING AND MULTI-LEG

- 1) To view a stored leg in Trail Blazing, the Outback must be in Trail Blazing. To view a stored leg in Multi-Leg, the Outback must be in Multi-Leg.

- 2) A timer can not be running while viewing a stored leg. Press ENTER to stop a timer which is running.
- 3) Press ADVANCE to step to from one leg to the next.
- 4) The display word shows the heading for three seconds and then the timer for three seconds. (Example: "L2 210° and "0:45:20" if a leg is programmed or "L2 —" and "0:00:00" if a leg is unprogrammed)
- 5) The Outback allows you to view only one unprogrammed leg. (Example: If L0 through L2 are programmed, pressing ADVANCE while viewing L3, takes you back to L0)

ERASING LEGS IN TRAIL BLAZING AND MULTI-LEG

- 1) To erase legs in Trail Blazing, the Outback must be in Trail Blazing. To erase legs in Multi-Leg, the Outback must be in Multi-Leg.
- 2) If erasing only one leg, press ADVANCE until that leg is displayed. (Example: "L2 210°") If erasing all legs, pressing ADVANCE repeatedly is not necessary. (see step 6)
- 3) Hold MENU until *PROGRAM* flashes to enter programming mode.
- 4) Press ADVANCE until "ERASE" is displayed, and then press ENTER. The display word flashes the leg you were previously viewing. (Example: "L2 210°")
- 5) To erase only this leg, press ENTER. The Outback returns to operating mode and all stored legs with a higher position are moved down one position. (Example: L0, L1, L2, L3 and L4 are stored. L1 is erased and L2, L3, and L4 all move down one position and become L1, L2, and L3, respectively)
- 6) To erase all legs, press ADVANCE and the display word flashes, "ALL." Then press ENTER. The Outback returns to operating mode, and the display word shows the first leg without any stored values. (Example "L0—°" and "0:00:00")

DAY AND NIGHT NAVIGATION

THE OFF-TRACK ANGLE IN TRAIL BLAZING AND MULTI-LEG

In Trail Blazing and Multi-Leg, the Outback warns you when your actual heading deviates from your desired heading by an amount greater than the 'off-track' angle. The 'off-track' angle is the number of degrees you can be off course before Day or Night Navigation warn you. Trail Blazing and Multi-Leg have independent 'off-track' angles. The default 'off-track' angle is 10° for both Trail Blazing and Multi-Leg.

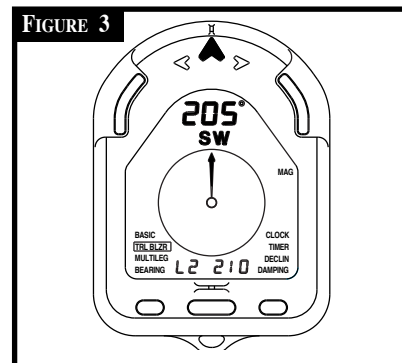
- 1) To change the 'off-track' angle in Trail Blazing, the Outback must be in Trail Blazing. To change the 'off-track' angle in Multi-Leg, the Outback must be in Multi-Leg.
- 2) Hold MENU until *PROGRAM* flashes to enter programming mode. The display word flashes "RETURN" in Trail Blazing or "PROGRM" in Multi-Leg.
- 3) Press ADVANCE until the display word says, "OFFTRK" and then press ENTER.
- 4) The display word flashes the current angle. (Example: "OT 10°")
- 5) The 'off-track' angle can be set from 1° to 20°. The 'off-track' angle can also be set to "OFF" which turns Day and Night Navigation off.
- 6) Press ADVANCE until the desired 'off-track' angle is displayed, and then press ENTER. The Outback returns to operating mode.

NOTE: A narrow 'off-track' angle may be difficult to maintain. Experiment with different angles until you find the one that works best for you.

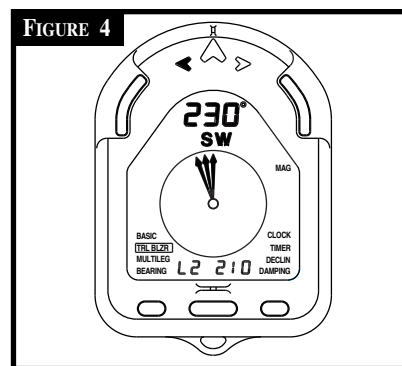
DAY NAVIGATION IN TRAIL BLAZING AND MULTI-LEG

Day Navigation only functions while running a leg in Trail Blazing or Multi-Leg.

- 1) If the 'off-track' angle is set to "OFF", Day Navigation is off and the compass rose shows a solid North pointing arrow and a flashing arrow pointing to the stored heading. An 'off-track' angle of 1° or greater must be set for Day Navigation to function. To change the 'off-track' angle, see the "Off-Track Angle" section on the previous page.
- 2) While 'on-course' in Trail Blazing and Multi-Leg, the compass rose shows one flashing arrow pointing straight ahead. Press ADVANCE to toggle the display word between the timer and desired heading. See Figure 3 on the next page.
- 3) An 'off-track' arrow appears when your actual heading differs from your desired heading by an amount greater than the set 'off-track' angle. Additional arrows fan out as you get farther off course. The direction the arrows fan out, indicates the direction you should turn towards to get back on course. See Figure 4 on next page.
- 4) As you proceed back on course, the fanned out arrows disappear until only one arrow, pointing straight ahead, is displayed.



The Outback is in operating mode of Trail Blazing with L 2 running. The stored heading is 210° and 'off-track' angle is 10°. The current heading is 205° and Night Navigation is on. The Outback is 'on-track' therefore one Day Navigation arrow is illuminated and the green Night Navigation arrow is illuminated. Both arrows point straight ahead indicating continue straight ahead to stay on course.



The Outback is in operating mode of Trail Blazing with L 2 running. The stored heading is 210° and the 'off-track' angle is 10°. The current heading is 230° and Night Navigation is on. The Outback is 'off-track' by 20°, therefore additional Day Navigation arrows are illuminated and the left red Night Navigation arrow is illuminated. All arrows are pointing left, indicating bear left to get back on course.

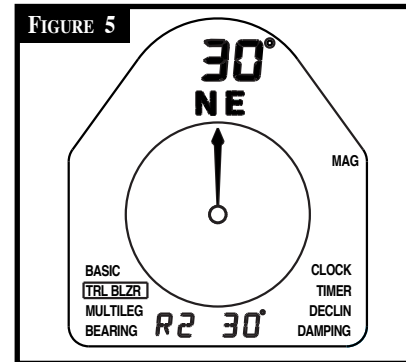
NIGHT NAVIGATION IN TRAIL BLAZING AND MULTI-LEG

Night Navigation only functions while running a leg in Trail Blazing and Multi-Leg.

- 1) An 'off-track' angle of 1° or greater must be set for Night Navigation to function. To change the off-track angle, see the "Off-Track Angle" on page 18.
- 2) Hold LIGHT (for more than 2 seconds) while in Trail Blazing or Multi-Leg to turn Night Navigation on. The timer for a leg must be running for Night Navigation to operate.
- 3) Follow the Night Navigation arrows to keep on the desired course.
See Figures 3 and 4 on the previous page.
Green Arrow: On course, continue straight ahead.
Left Red Arrow: Off course, bear left until the green arrow appears.
Right Red Arrow: Off course, bear right until the green arrow appears.
- 4) To turn Night Navigation off, hold LIGHT for more than 2 seconds.

AUTOMATIC RETURN IN TRAIL BLAZING AND MULTI-LEG**EXECUTING AUTOMATIC RETURN IN TRAIL BLAZING AND MULTI-LEG**

- 1) To reverse a course in Trail Blazing, the Outback must be in Trail Blazing. To reverse a course in Multi-Leg, the Outback must be in Multi-Leg.
- 2) Hold MENU until *PROGRAM* flashes to enter programming mode. Press ADVANCE until the display word flashes, "RETURN" then press ENTER. The Outback automatically reverses all the legs and returns to operating mode.
- 3) The return legs have an 'R' instead of an 'L' in front of them, indicating that the legs have been reversed. (Example: "R2: 30°")
See Figure 5 on the next page.



The Outback is in operating mode of Trail Blazing, the course has been reversed, and L2 is running. The Outback is 'on-track', therefore one Day Navigation arrow is illuminated.

- 4) Press ENTER to start the timer of the first reversed leg (last completed leg) counting down. Day Navigation arrows appear if the 'off-track' angle is greater than zero. See page 19 for details on Day Navigation. Night Navigation arrows appear if Night Navigation is on. See page 21 for details on Night Navigation.
- 5) To end a leg before the timer counts down to zero, press ENTER and the timer stops. If the timer reaches zero, it automatically begins to count up. This allows you to estimate how much longer it took returning on a leg or how much you may have overshot a leg.
- 6) Press ADVANCE to move to the next leg, and then press ENTER to start the next timer.
- 7) After using the Automatic Return feature, re-executing Automatic Return reverses the legs back to the original order and resets the timers to the original values. The legs are denoted with an 'L' instead of an 'R'.

Note: If after selecting Automatic Return, you decide not to return, you can continue on your journey by executing the Automatic Return command again. The legs are denoted with an 'L' instead of an 'R'.

BEARING MENU OPTION

The Outback must be in Bearing to use any of the features described in this section.

FEATURES

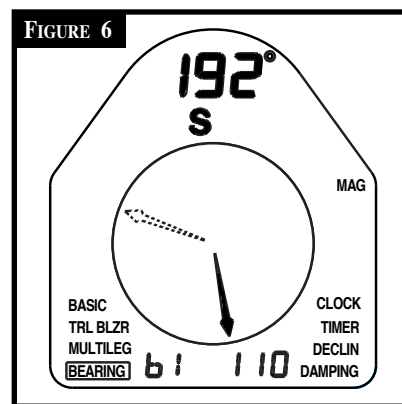
Bearing mode takes and stores up to 10 bearings (headings) in memory, b0 through b9. For example, you can store the bearings to a mountain on the horizon and to a nearby windmill. With two bearings and a map of the area, you can find your position by triangulation. The more bearings used, the more accurately you can pinpoint your location on the map.

In Bearing, the Outback can be used as a compass as well as to store bearings: the Numeric Display shows the current heading, a solid arrow on the compass rose points to North, a flashing arrow on the compass rose points in the stored bearing direction, and the display word shows the stored bearing.

STORING AND VIEWING BEARINGS

- 1) The Outback must be in Bearing to store or view bearings.
- 2) Press ADVANCE to step from one stored bearing to the next, until the memory position where you want to store bearing is in the display word.
- 3) Bearings can be stored in any memory position, whether there is a bearing previously stored or not. The Outback allows you to view all programmed and unprogrammed memory positions, b0 through b9.
- 4) Point the Outback in the direction you want to store, line up the gunsights and press ENTER.
- 5) A flashing arrow on the compass rose points in the direction of the stored bearing and a solid arrow points North. The display word shows the stored bearing (Example: "b1 110°"), and the numeric display shows the current heading. See Figure 6 on the next page.
- 6) To store another bearing repeat steps 1 through 4.

NOTE: Pressing ENTER while viewing a stored bearing will erase that stored bearing and store a new one. Take care not to accidentally erase a stored bearing.



The Outback is in operating mode of Bearing. The current heading is 192°, and the heading reference is magnetic north. The display word shows the stored bearing of 110°. The solid arrow points North and the flashing arrow points to the stored bearing direction of 110°.

ERASING BEARINGS

- 1) The Outback must be in Bearing mode to erase bearings.
- 2) If erasing one bearing press ADVANCE until that memory position is shown in the display word. (Example: "b1 110°") This bearing can be reprogrammed over by pressing ENTER while lining up a new bearing, or it can be erased completely.
- 3) If erasing all stored bearings, it is not necessary to press ADVANCE repeatedly. (see step 6)
- 4) To erase one or all bearings completely, hold MENU until PROGRAM flashes to enter programming mode. The display word flashes "ERASE."

- 5) Press ENTER, and the previously viewed bearing flashes.
(Example: "b1 110°") If erasing only this bearing, press ENTER and the Outback returns to operating mode and the display word shows an unprogrammed bearing. (Example: "b1 —.")
- 6) If erasing all stored bearings, press ADVANCE once and the display word flashes "ALL." Then press ENTER. The Outback returns to operating mode and all bearings are erased.

CLOCK MENU OPTION

The Outback must be in Clock to use any of the features described in this section.
The clock displays time in either military or standard time formats. Military time refers to a 24 hour clock format, 00:00 to 23:59. Standard time refers to two 12 hour formats, 1 to 12:59am and 1 to 12:59pm. The default time format is standard time.

CHOOSING TIME FORMATS

1. The Outback must be on the Clock Menu Option to change the time format.
2. The time format is changed by pressing ADVANCE.
3. In standard time format, the display word shows the time followed by either A which represents AM, or P which represents PM. (Example: "10:30P" which means 10:30 PM)
4. Press ADVANCE and the display word shows the military time format. Military time format does not denote AM or PM. (Example: "22:30")
5. Press ADVANCE again, and the display returns to the standard time format.

SETTING THE CLOCK

1. The Outback must be on the Clock Menu Item to program the clock. The clock must be operating in which ever time format you want to set the clock in. (Example: If you want to program the clock with a standard time, you need to choose the standard time format before you begin programming. See "Choosing Time Formats" in the section on the preview page.)
2. Hold MENU until *PROGRAM* flashes to enter programming mode. The display word shows the current time with the first 2 digits flashing. If no time has been programmed, the default is "12:00A" or "00:00". (Example: "12:00A" or "00:00".)
3. Press ADVANCE to increase the digits until the correct hour is displayed. Then press ENTER. (Example: "10:00P" for 10:30PM standard time or "22:00" for 22:30 military time)
4. Now the 3rd digit flashes. (Example: "10:00P" in standard time format or "22:00" in military time format)
5. Press ADVANCE to increase the digit until the correct digit is displayed. Then press ENTER. (Example: "10:30P" for 10:30PM standard time or "22:30" for 22:30 military time)
6. Now the 4th digit flashes. (Example: "10:30P" in standard time format or "22:00" in military time format)
7. Press ADVANCE to increase the digit until the correct digit is displayed. Then press ENTER. (Example: "10:30P" for 10:30PM standard time or "22:30" for 22:30 military time)
8. The Outback automatically returns to operating mode after the time is set.

NOTE: After reaching 11:00A in programming mode in the standard time format, the time changes to 12:00P.
When programming in standard time, make sure the correct AM or PM is displayed in addition to the correct hour before pressing ENTER.

TIMER MENU OPTION

The Outback must be in Timer to use any of the features described in this section.

FEATURES

The timer is a standard counter that counts up or down. The timer has a maximum of 9 hours, 59 minutes and 59 seconds, "9:59:59". The Outback can be used as a compass while still using the timer: the numeric display shows the current heading, the compass rose points North and the display word shows the timer.

When counting up, the timer starts at "0:00:00" or a time you set such as 4 hours and 30 minutes "4:30:00", and counts up. When counting down, the timer is set to a certain time such as 15 minutes "0:15:00", and counts down from that time. If the timer reaches the maximum, it resets to "0:00:00" and begins to count up. If the timer reaches zero while counting down, it resets and begins to count up.

SETTING THE TIMER:

- 1) The Outback must be in Timer to set the timer.
- 2) If 0:00:00 is displayed in the timer and you want to count up from zero, skip to "Starting and Stopping the Timer" on the next page. Otherwise hold MENU until *PROGRAM* flashes to enter programming mode.
- 3) The display words flashes "PROGRM" and press ENTER. Then the display word flashes "CNT UP". If you want the timer to count up, press ENTER while "CNT UP," is displayed. (Example: "0:20:00" to "0:20:01"...))

- 4) If you want to count down, press ADVANCE once and "CNT DN" is displayed. Then press ENTER. (Example: "1:30:00" to "1:29:59"...))
- 5) After selecting whether to count up or count down, the first digit of the timer flashes. (Example: "0:00:00" if a time is not stored or "1:30:00" if a time is previously stored).
- 6) Press ADVANCE to change the value of the flashing digit. When the correct digit is displayed press ENTER. (Example: "3:00:00 for "3:40:00"))
- 7) Now the next digit of the timer flashes. Repeat step 6 for the remaining 4 digits. The digit flashing is the one being set.
- 8) The Outback returns to operating mode after all the digits are set.

STARTING AND STOPPING THE TIMER:

- 1) The Outback must be in Timer to start or stop the timer.
- 2) Press ENTER to start or stop the timer. When a timer is running, the colons flash.
- 3) If a time has not been entered and ENTER is pressed, the timer starts counting up from zero.
- 4) Press ENTER to restart a stopped timer from where it left off.

ERASING THE TIMER

- 1) The Outback must be in Timer to erase a stored timer.
- 2) Hold MENU until *PROGRAM* flashes to enter programming mode. The display word flashes "PROGRM."
- 3) Press ADVANCE and the display word flashes "ERASE". Then Press ENTER. The timer is now erased and a new time can be stored.
- 4) Alternately, a stored time can be reprogrammed over without erasing it. Follow the steps 1 through 7 in "Setting the Timer" to program over an existing time.

DECLINATION MODE OPTION

The Outback must be in Declination to use any of the features in this section.

FEATURES

To use true north as the heading reference, a magnetic declination angle must be stored and chosen. The Outback can store up to 10 different declination angles, d0 - d9. Magnetic declination is the difference between true and magnetic north. It is measured in degrees to the East or West of magnetic north. Declination angles vary throughout the world. The default declination angle is 10° West. See Figure 7 on next page to locate the declination angle for your area in the U.S..

STORING DECLINATION ANGLES

- 1) The Outback must be in Declination to store declination angles.
- 2) Press ADVANCE to step from one stored declination angle to the next until the one you want program is displayed.
- 3) Hold MENU until *PROGRAM* flashes to enter programming mode. The first digit of the declination angle will flash. (Example: "d0 00°E" if no declination is stored or "d0 10°E" if an angle has already been programmed)
- 4) Press ADVANCE to change the value of the flashing digit, and when the correct digit is displayed, press ENTER. (Example: 1 for the first digit of 12°E)
- 5) The next digit will flash. Repeat step 3 to set the second digit.
- 6) Then the display word flashes the letter E for East. For an angle which is to the East of true north, such as 12°E, press ENTER while "E" is flashing.
- 7) For an angle which is to the West of true north, such as 5°W, press ADVANCE and W flashes. (Example: d0 5°W) Press ENTER to select West.
- 8) After selecting East or West, the Outback returns to operating mode.

To store another declination angle, repeat steps 1 through 7.

NOTE: Even though declination angles have been stored, a declination angle must be chosen to use true north as the heading reference. See "Choosing a Declination Angle" on page 30.

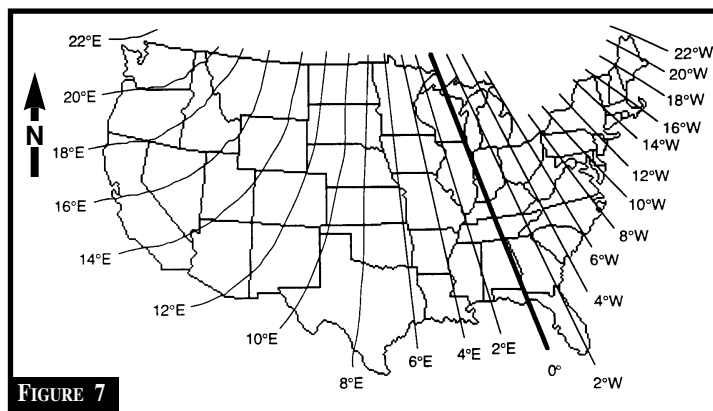


FIGURE 7

Declination angles of the U.S. For local declination, download the magnetic field calculation software free from www.interpex.com/magfield.htm, or contact the Brunton company at 307 856 6559.

CHOOSING DECLINATION ANGLES:

- 1) The Outback must be in Declination mode to choose a declination angle.
- 2) Press ADVANCE to step from one stored declination angle to the next until you see the one you want to use, and then press ENTER. The Outback now uses that chosen declination when referenced to true north.
- 3) The chosen declination angle does not flash when in the display word. Any angle, which is not the chosen declination angle, flashes when in the display word.
- 4) If ENTER is not pressed while viewing a declination angle other than the chosen one, the Outback uses the angle which was previously chosen. (Example: If the declination angle is currently 12°E and you scroll through the declination angles by pressing ADVANCE, and ENTER is not pressed while viewing another angle, the Outback continues to use 12°E as the declination angle)

DAMPING MENU OPTION

The Outback must be in Damping to use any of the features described in this section.

FEATURES

Tilting or jarring a compass can create errors in the compass heading because it shakes the magnetic sensors inside the compass. In Damping, the Outback averages the compass headings to minimize the effects of errors in individual headings. This is useful when there is erratic movement, such as in a boat. The selected damping value is used for every heading reading in all menu options. Damping can be set 0 to 9, with 0 being no damping and 9 being maximum damping. The chosen value for damping is shown in the display word when damping is first selected. (Example: "dP5") The default damping value is 5, meaning there is moderate damping.

CHOOSING A DAMPING VALUE:

- 1) The Outback must be in Damping to choose a damping value.
- 2) Press ADVANCE to step from one damping value to the next until you see the one you want to use, then press ENTER. Choose 0 for no damping, 1 for a little damping and so on, up to 9 for maximum damping.
- 3) The chosen damping value does not flash when in the display word. Any value which is not the chosen value, flashes when in the display word.
- 4) If you do not press ENTER while viewing a damping value, the Outback uses the value which was previously selected. (Example: If the damping value is currently 5, and you scroll through the damping values by pressing ADVANCE, and ENTER is not pressed while viewing a different damping value, the Outback continues to use 5 as the damping value)

CHANGING BATTERIES

Battery life of the Outback is approximately 200 hours, depending on usage. Night Navigation and the LCD backligh take significantly more power than the compass alone. Therefore to maximize battery life, use Night Navigation and backlighting only when necessary. Also, turning the power off when not using the Outback and setting on auto shut-off value is highly recommended.

The Outback uses 2 lithium coin cell batteries, #2032. These are common batteries and are available anywhere watch, camera, calculator or hearing aid batteries are sold such as Radio Shack, Walmart, Target or Kmart.

CHANGING BATTERIES

- 1) When the display word shows "bAT LO", the batteries need to be changed.
- 2) To remove the batteries, turn the compass upside down.
- 3) Turn the battery door counterclockwise from the lock to open position, until it can easily be removed.
- 4) Gently take out the old batteries and discard.
- 5) Place one new battery into the battery compartment with the positive side toward the battery door.
- 6) Place the other battery on top of the previously inserted battery, with the positive side toward the battery door.
- 7) Replace the battery door and turn clockwise from the open to lock position.
- 8) When the batteries are first inserted, the Outback will go through a test pattern, momentarily illuminating all the LCD segments.
- 9) Turn the Outback right side up and press power. If the Outback does not turn on, remove the batteries and re-insert them. Both batteries must make contact for the power to turn on.
- 10) Since the batteries have been removed, it is necessary to calibrate the Outback.

TROUBLE SHOOTING

ACCURACY PROBLEMS

PROBLEM: The Outback seems to give inaccurate readings.

SOLUTION 1: Calibrate the Outback. Due to the internal electronics of the Outback and stray magnetic fields from outside sources, the Outback must be calibrated to be accurate. The Outback must be calibrated upon initial use, and when the batteries are removed or replaced. See page 10 for details on how to calibrate the Outback.

SOLUTION 2: Change the batteries. As the batteries in the Outback wear down, it can cause the Outback to give inaccurate or jumpy readings. See page 32 for details on changing batteries.

PROBLEM: The Outback is supposed to be tilt-compensated. When the Outback is tilted, it gives inaccurate readings.

SOLUTION: The Outback does provide tilt-compensation within a range of $\pm 15^\circ$ from level. Keep in mind 15° is not a large amount. 1° is approximately the thickness of a sheet of paper. Tilt-compensation is provided to allow the Outback to be accurate even when not held perfectly level, not to allow for use at large tilt angles.

POWER PROBLEMS

PROBLEM: When the light button is pressed, the Outback shuts off.

SOLUTION: Change the batteries. The backlight and night navigation LED's take more power than the compass alone. Therefore when the light button is pressed, the Outback may need more power than available and shuts off. See page 32 for details on changing batteries.

PROBLEM: When pressing and holding POWER to turn the Outback on, it goes through the LCD test pattern, momentarily illuminating all the LCD segments, and then shuts off.

SOLUTION: Change the batteries. Initially powering up the Outback takes more power than only having the compass on. Therefore when powering up the Outback, it may need more power than available and it resets itself by going through the LCD test pattern. See page 32 for details on changing batteries.

Problem: After pressing a button, the Outback goes through the LCD test pattern, momentarily illuminating all the LCD segments, and then shuts off.

Solution: Change the batteries. Pressing a button on the Outback takes more power than the only having the compass on. Therefore when a button is pressed, the Outback may need more power than available and it resets itself by going through the LCD test pattern. See page 32 for details on changing batteries.

DISPLAY PROBLEMS

Problem: "dIST" is shown on the display word.

Solution: Calibrate the Outback. When the Outback detects magnetic interference causing errors in the compass heading, "dIST" is shown on the display word indicating magnetic distortion. If after recalibrating the Outback "dIST" is still displayed, the Outback is most likely close to some object with very strong magnetic fields, such as an underground steel tank. Try moving away from the source of the magnetic field; even a slight separation helps. See page 10 for details on calibration.

Problem: The Outback is "stuck". No matter what button is pressed, nothing happens.

Solution: Remove the batteries, wait 60 seconds and reinsert the batteries. Sometimes there is an abrupt change in power which causes the Outback to get "stuck". Generally, this will only happen once and it will not harm the Outback. See page 32 for details on removing batteries.

WARRANTY

1 YEAR LIMITED WARRANTY

The Brunton Company warrants the Outback Electronic Compass against all defects in material and workmanship for a period of one (1) year from the date of the original purchase, subject to the following terms and conditions:

1. This Warranty does not apply if the Outback has been subjected to physical abuse, improper installation modification, or the serial number has been removed.
2. This Warranty does not apply to damage caused by improper battery use.
3. THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF, AND THE BRUNTON COMPANY IS NOT LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR MISUSE OF THE OUTBACK COMPASS THIS WARRANTY GIVES YOU SPECIFIC RIGHTS. YOU MAY HAVE OTHER LEGAL RIGHTS WHICH VARY FROM STATE TO STATE.

THE *BRUNTON* CO.

Riverton, Wyoming

For the most prompt service on your Outback, return it to the place of purchase. The consumer is responsible for any transportation, shipping or insurance related to the return of this product. If returning the Outback directly to Brunton, authorization and proof of place and date of purchase is needed.

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